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(54) RECLAIMED MOLDING PROVIDED BY PRESS MOLDING, AND MANUFACTURING METHOD THEREFOR

(57)Abstract:
PROBLEM TO BE SOLVED: To provide reclaiming method for a press molding using, as a raw material(s), a waste material of an automobile ceiling containing a cellular material of a modified polyphenylene ether resin and a non-woven fabric or a woven fabric, and/or an end material generated in molding work.
SOLUTION: The press molding is provided and reclaimed after 100-30 wt.% of pulverized powder provided by crushing the automobile ceiling containing the cellular material of the modified polyphenylene ether resin and the non- woven fabric or the woven fabric into 30 mm or smaller of average particle size, 0-50 wt.% of paper pulverized into 30 mm or smaller of average particle size, 0-70 wt.% of polyolefin film pulverized into 30 mm or smaller average particle size, and 0-30 wt.% of thermoplastic resin are mixed.

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CLAIMS

[Claim(s)]
[Claim 1] The regeneration form acquired by carrying out press forming after mixing 100 - 30 % of the weight of automobile head-lining material grinding articles containing the denaturation polyphenylene ether system resin foam ground so that it might become the pitch diameter of 30mm or less, and a nonwoven fabric and/or textile fabrics, 0 - 50 % of the weight of papers ground in pitch diameter of 30mm or less, 0 - 70 % of the weight of polyolefine films ground in pitch diameter of 30mm or less, and 0 - 30 % of the weight of thermoplastics.
[Claim 2] The regeneration form according to claim 1 acquired [95 - 35 % of the weight of automobile head-lining material grinding articles containing denaturation polyphenylene ether system resin foam, and a nonwoven fabric and/or textile fabrics] 5 - 50 % of the weight of ground papers by carrying out press forming after mixing 0 - 45 % of the weight of ground polyolefine films, and 0 - 30 % of the weight of thermoplastics.
[Claim 3] The regeneration form according to claim 1 or 2 characterized by being waste head-lining material, such as waste head-lining material of the automobile as for which automobile head-lining material carried out commercial-scene many years past, and/or edge material generated in a production process.
[Claim 4] The regeneration form of claim 1-3 to which said denaturation polyphenylene ether system resin foam is characterized by consisting of polyphenylene ether system resin and polystyrene system resin given in any 1 term.
[Claim 5] The regeneration form of claim 1-4 to which said polyolefine film is characterized by being a product made from polypropylene, and/or a product made from polyethylene given in any 1 term.
[Claim 6] The regeneration form of patent claim 1-5 to which said nonwoven fabric is characterized by being a product made from polyethylene terephthalate given in any 1 term.
[Claim 7] The manufacture approach of the regeneration form of claim 1-6 given in any 1 term which comes [100 - 30 % of the weight of automobile head-lining material grinding articles containing denaturation polyphenylene ether system resin foam, a nonwoven fabric, and/or textile fabrics / 0 - 50 % of the weight of ground papers] to carry out press forming after mixing 0 - 70 % of the weight of ground polyolefine films, and 0 - 30 % of the weight of thermoplastics.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] The waste head-lining material of the automobile by which this invention contains the foam, the nonwoven fabric, or textile fabrics of polyphenylene ether system resin in more detail about recycle of the head-lining material of an automobile and which carried out commercial-scene many years past, and ** are related with the technique aiming at reuse of the press-forming object using waste head-lining material, such as edge material generated in a production process, as a raw material.
[0002]
[Description of the Prior Art] The treatment of waste head-lining material currently performed from the former remaining as it is or crushing was performed, and incineration processing or reclamation processing was performed. However, incineration processing will need to use the furnace at which the Daiki Singh correspondence was taken from the problem of the dioxin in exhaust gas, and the costs concerning incineration are becoming higher than before. Moreover, the location which can carry out reclamation of the reclamation processing from an environmental problem is restricted, and a reclamation disposal cost is also beginning to soar. From consideration of an environmental problem and a viewpoint of being environment-friendly, material recycle of waste head-lining material is desired.
[0003] Moreover, although it leads to the fuel consumption improvement of an automobile and came to be mostly used since the head-lining material using the existing denaturation polyphenylene ether (denaturation PPE) system foam, the heat-resistant nonwoven fabric, or heat-resistant textile fabrics is lightweight, recycle of waste head-lining material, such as waste head-lining material of the automobile which carried out commercial-scene many years past, and edge material which generates ** in a production process, is demanded.
[0004] Although JP,5-124054,A, JP,9-029875,A, and JP,9-029877,A are well-known about the head-lining material using denaturation polyphenylene ether system foam and a nonwoven fabric, JP,2001-79842,A is known about recycle of this head-lining material. JP,2001-79842,A is extrusion molding or a thing which carries out injection molding at the Plastic solid of a request configuration, without extruding and making it a pellet type, or extruding and carrying out, after grinding head-lining material. However, although a man day starts, extrusion molding or the board which carried out injection molding cannot be used as a member as which reinforcement with it is required, without carrying out a pellet or carrying out after grinding using the resin containing the nonwoven fabric of a polyethylene terephthalate system, and denaturation polyphenylene ether system resin. [low reinforcement and] [sufficient]
[0005] Moreover, after carrying out a pellet after grinding using the resin containing the nonwoven fabric of a polyethylene terephthalate system, and denaturation polyphenylene ether system resin, the mold goods which reinforcement is very inferior in the mold goods which carried out press forming, and can be used very much in a commercial scene are not obtained.
[0006]
[Problem(s) to be Solved by the Invention] It is in realizing the approach and its recycle mold goods for making possible incineration processing or not reclamation processing but simpleest material

recycle using waste head-lining material, such as waste head-lining material of the automobile by which this invention contains the foam, the nonwoven fabric, or textile fabrics of denaturation polyphenylene ether system resin in view of such a situation and which carried out commercial-scene many years past, and edge material which generates ** in a production process, and contributing to a deployment of a resource. It is in obtaining the mold goods which carried out press forming in more detail, without carrying out a pellet after grinding using said waste head-lining material. Using the simplest cheap means, the perfect material recycle of waste head-lining material can be begun industrially, and can be made successful by this approach.

[0007]

[Means for Solving the Problem] That is, this invention is a regeneration form (claim 1) acquired by carrying out press forming after mixing 100 - 30 % of the weight of automobile head-lining material grinding articles containing the denaturation polyphenylene ether system resin foam ground so that it might become (1) pitch diameter of 30mm or less, and a nonwoven fabric and/or textile fabrics, 0 - 50 % of the weight of papers ground in pitch diameter of 30mm or less, 0 - 70 % of the weight of polyolefine films ground in pitch diameter of 30mm or less, and 0 - 30 % of the weight of thermoplastics.

[0008] (2) The regeneration form according to claim 1 acquired [95 - 35 % of the weight of automobile head-lining material grinding articles containing denaturation polyphenylene ether system resin foam, and a nonwoven fabric and/or textile fabrics] 5 - 50 % of the weight of ground papers by carrying out press forming after mixing 0 - 45 % of the weight of ground polyolefine films, and 0 - 30 % of the weight of thermoplastics (claim 2).

[0009] (3) The regeneration form according to claim 1 or 2 characterized by being waste head-lining material, such as waste head-lining material of the automobile as for which automobile head-lining material carried out commercial-scene many years past, and/or edge material generated in a production process.

[0010] (4) The regeneration form of claim 1-3 to which said denaturation polyphenylene ether system resin foam is characterized by consisting of polyphenylene ether system resin and polystyrene system resin given in any 1 term.

[0011] (5) The regeneration form of claim 1-4 to which said polyolefine film is characterized by being a product made from polypropylene, and/or a product made from polyethylene given in any 1 term.

[0012] (6) The regeneration form of patent claim 1-5 to which said nonwoven fabric is characterized by being a product made from polyethylene terephthalate given in any 1 term.

[0013] (7) The manufacture approach of the regeneration form of claim 1-6 given in any 1 term which comes [100 - 30 % of the weight of automobile head-lining material grinding articles containing denaturation polyphenylene ether system resin foam, a nonwoven fabric, and/or textile fabrics / 0 - 50 % of the weight of ground papers] to carry out press forming after mixing 0 - 70 % of the weight of ground polyolefine films, and 0 - 30 % of the weight of thermoplastics.

[0014]

[Embodiment of the Invention] As polyphenylene ether system resin (PPE system resin) of this invention For example, Pori (2, 6-dimethyl phenylene -1, 4-ether), Pori (the 2-methyl-6-ethyl phenylene -1, 4-ether), Pori (2, 6-diethyl phenylene -1, 4-ether), Pori (2, 6-diethyl phenylene -1, 4-ether), Pori (the 2-methyl-6-n-propyl phenylene -1, 4-ether), Pori (the 2-methyl-6-n-butyl phenylene -1, 4-ether), Pori (the 2-methyl-6-KURORU phenylene -1, 4-ether), Pori (the 2-methyl-6-bromine phenylene -1, 4-ether), Pori (the 2-ethyl-6-KURORU phenylene -1, 4-ether), etc. are raised.

[0015] These may be used independently, may be combined two or more sorts and may be used. Among these, Pori (2, 6-dimethyl phenylene -1, 4-ether) is desirable from the versatility of a raw material, and the point of cost. Moreover, Pori (the 2-methyl-6-KURORU phenylene -1, 4-ether) where a halogen system element is contained, Pori (the 2-methyl-6-bromine phenylene -1, 4-ether), Pori (the 2-ethyl-6-KURORU phenylene -1, 4-ether), etc. are illustrated to give fire retardancy.

[0016] In order to make the foam of polyphenylene ether system resin, it is desirable to use the denaturation polyphenylene ether system resin which added polystyrene system resin (PS system resin) from the point of workability. PS system resin is resin which uses styrene or its derivative, for example, alpha methyl styrene, 2, 4-dimethyl styrene, mono-KURORU styrene, dichloro styrene, p-

methyl styrene, ethyl styrene, etc. as a principal component (60 % of the weight or more preferably 70 % of the weight or more). Therefore, PS system resin may be the copolymer made by copolymerizing not only with the homopolymer which consists only of styrene or a styrene derivative but with other monomers.

[0017] Moreover, for example like high impact polystyrene, in case the polymerization of styrene or the styrene derivative is carried out, the polymerization of synthetic rubber or the rubber latex may be added and carried out.

[0018] as the styrene in which it is used for manufacture of said PS system resin, and deals, or the derivative and other monomers which can be copolymerized, carboxyl group content monomers, such as acrylonitrile, a methacrylonitrile, methyl (meta) acrylate, ethyl (meta) acrylate, butyl (meta) acrylate or a maleic anhydride, an itaconic acid, an acrylic acid, and a methacrylic acid, etc. raise, for example -- having -- these -- independence -- or two or more sorts are combined and it is used.

[0019] As an example of said PS system resin, the copolymer of polystyrene and styrene-alpha methyl styrene, the styrene butadiene copolymer represented with high impact polystyrene, a styrene acrylonitrile butadiene copolymer, etc. are raised, for example. Moreover, as heat-resistant higher PS system resin, the copolymer of styrene and a carboxyl group content monomer is mentioned, for example, there are a styrene maleic anhydride copolymer and a styrene-itaconic-acid copolymer.

[0020] [whether in case the foam of conversion polyphenylene ether system resin (conversion PPE system resin) is manufactured, the denaturation PPE system resin which mixed PS system resin is used for said PPE system resin, and] Or the denaturation PPE system resin which added PS system resin further may be used for the denaturation PPE system resin which carried out the graft polymerization of styrene or its derivative to PPE system resin, using the conversion PPE system resin which carried out the graft polymerization of styrene or its derivative to PPE system resin. As for the compounding ratio of PPE system resin and PS system resin, in denaturation PPE system resin, 75-5 are desirable from workability and thermal resistance 25-95 pairs.

[0021] Although it is well-known and a pyrolysis mold foaming agent is also usable as the manufacture approach of the denaturation PPE system resin foaming layer used in this invention Copolymerization resin, or the PPE system resin, PS system resin and mixed resin of PPE and styrene, And the approach of fabricating with an extruder, the resin which added various kinds of additives in the shape of a sheet by a mandrel etc., after kneading, pressing a foaming agent fit under elevated-temperature high pressure, adjusting to foaming optimum temperature and extruding to a low pressure zone (usually inside of atmospheric air), melting and is suitable.

[0022] As a foaming agent used in manufacture of a denaturation PPE system resin foaming sheet, hydrocarbons, such as butane, a propane, a pentane, a methyl chloride, dichloromethane, chlorophloromethane, a dichloroethane, and dichloro JIFURORO ethane, halogenated hydrocarbon, etc. are mentioned, and you may use it combining them.

[0023] It is desirable to pile up the epidermis material which consists of a nonwoven fabric or textile fabrics on it, to put into a tacking meal and a heating furnace, to carry out plug shaping after heating and with metal mold, and to manufacture the head-lining material for automobiles on the foaming laminating sheet obtained by the foaming sheet which uses the denaturation PPE system resin of this invention as base material resin at both sides or one side by carrying out the laminating of the non-foaming layer which consists of resin, after carrying out thermocompression bonding of the hot-melt-adhesive film.

[0024] as the non-foaming layer base material resin which carries out a laminating to denaturation PPE system resin foam -- PS system resin and denaturation PPE system resin, polypropylene (PP) system resin, (Polyethylene PE) system resin, polyamide (nylon) system resin, polyester system resin, etc. are mentioned, and these are independent -- or although two or more sorts are combined and it is used, PS system from an adhesive property with a denaturation PPE system resin foaming layer and denaturation PPE system resin are suitable. As PS system resin, a polystyrene, high-impact-polystyrene, and styrene-alpha methyl styrene copolymer, an alpha methyl styrene-acrylonitrile copolymer, a styrene-alpha methyl styrene-acrylonitrile copolymer, a styrene maleic anhydride copolymer, a styrene-acrylic-acid copolymer, a styrene-methacrylic-acid copolymer, and a styrene-itaconic-acid copolymer are mentioned, and also a blend object with polymers, such as a polycarbonate, is mentioned. Denaturation PPE system resin or PS system resin has especially

desirable manufacture at an easy point. Moreover, in order to improve the brittleness of a non-foaming layer further, a styrene-butadiene block copolymer, a styrene-butadiene-styrene block copolymer, a styrene-isoprene block copolymer, a styrene-isoprene-styrene block copolymer, or the aforementioned block copolymer by which hydrogenation was carried out may be added.
[0025] as hot melt adhesive, what used an olefin system, a denaturation olefin system, a polyurethane system, an ethylene-vinyl acetate copolymerization resin system, a polyamide system, a polyester system, a thermoplastic rubber system, a styrene-butane copolymer, and styrene-isoprene copolymer system resin as the component is mentioned, and these are independent -- or two or more sorts are combined and it is used.
[0026] As the nonwoven fabric or textile fabrics of this invention, natural materials, such as synthetic fibers, such as polyester, polypropylene, polyethylene, a polyacrylonitrile, a polyamide, modacryl (a money Charon, trade name by Kaneka Co., Ltd.), and a polyvinyl chloride, and wool, cotton, can be used, and they may be combined and used. The nonwoven fabric of cost and aesthetic property to polyester is especially desirable.
[0027] The polyester fiber obtained as polyester fiber of this invention by carrying out the polycondensation of the aromatic-carboxylic-acid component more than divalent and the alcoholic component more than divalent by the well-known approach is used. As polyester fiber being concrete, although polyethylene terephthalate, polypropylene terephthalate, polybutylene terephthalate, polyhexamethylene terephthalate, polycyclohexane dimethylene terephthalate, polyethylenenaphthalate, polybutylene naphthalate, etc. are mentioned for example, especially the fiber of polyethylene terephthalate is desirable.
[0028] Waste head-lining material, such as waste head-lining material of the automobile containing the foam, the nonwoven fabric, and/or textile fabrics of polyphenylene ether system resin of this invention which carried out commercial-scene many years past, and edge material which generates ** in a production process, has the desirable grinding article ground in pitch diameter of 30mm or less, and its grinding article which the pitch diameter ground to 10-5mm is more more desirable still. If a pitch diameter exceeds 30mm, when carrying out press forming and manufacturing a board, it becomes an ununiformity and the reinforcement as a board falls. In addition, the pitch diameter of a grinding article sampled the grinding article, expressed magnitude with the average of a major axis and a minor axis, and expressed it with the average of 50 samples.
[0029] As paper used by this invention, a straw Japanese writing paper, a report grade paper, paper of fine quality, coated paper, etc. can be used. Specifically, the grinding article which ground the refuse paper in pitch diameter of 30mm or less from a viewpoint of recycle, especially the grinding article which the pitch diameter ground to 10-1mm are desirable. If a pitch diameter exceeds 30mm, when carrying out press forming and manufacturing a board, it becomes an ununiformity and the reinforcement as a board falls. in addition, less than 1mm -- if it pulverizes -- homogeneity -- also excelling -- grinding takes time amount, and cost goes up and is not practical, either. Productivity and the grinding article ground from cost to 10-5mm are more desirable.
[0030] As a polyolefine film used by this invention, a low consistency polyethylene film, a high density polyethylene film, a polypropylene film, a denaturation polypropylene film, etc. are mentioned. The grinding article which ground the abandonment polyolefine film in pitch diameter of 30mm or less is specifically desirable, and the grinding article which the pitch diameter ground to 10-5mm is more more desirable still. If a pitch diameter exceeds 30mm, when carrying out press forming and manufacturing a board, it becomes an ununiformity and the reinforcement as a board falls.
[0031] Moreover, the Plastic solid acquired by carrying out press forming by this invention After mixing 0 - 50 % of the weight of ground papers, and ground 0 - 70 % of the weight of polyolefine films and 0 - 30 % of the weight of thermoplastics from the automobile head-lining material containing the foam, the nonwoven fabric, or textile fabrics of denaturation polyphenylene ether system resin, [100 - 30 % of the weight of grinding articles, and] It is what is obtained by carrying out press forming. From the physical properties of a Plastic solid After mixing 95 - 35 % of the weight of grinding articles of the automobile head-lining material which contains the foam, the nonwoven fabric, or textile fabrics of denaturation polyphenylene ether system resin preferably, 5 - 50 % of the weight of ground papers, and ground 0 - 45 % of the weight of polyolefine films and 0 - 30 % of the weight of thermoplastics, Press forming is carried out and it is obtained.

[0032] If the refuse paper ground by the grinding article of the automobile head-lining material containing the foam, the nonwoven fabric, and/or textile fabrics of denaturation polyphenylene ether system resin is used, since the advantageous press-forming object in cost will be acquired and it will lead to application development of a new refuse paper, it is very useful industrially.
[0033] If the paper which flexural strength fell at less than 30 % of the weight, and the mixed rate of the grinding article which ground the automobile head-lining material containing the foam, the nonwoven fabric, and/or textile fabrics of denaturation polyphenylene ether system resin ground exceeds 50 % of the weight, the lack of welding will take place and flexural strength will fall. Moreover, if the ground polyolefine film exceeds 70 % of the weight, a bending elastic modulus will fall.
[0034] In addition, since conversion polyphenylene ether resin, immiscible polyolefine, or polyester resin is intermingled if not simple press forming but melting kneading is performed after mixing 0 - 50 % of the weight of ground papers, and ground 0 - 70 % of the weight of polyolefine films and 0 - 30 % of the weight of thermoplastics from the automobile head-lining material containing the foam, the nonwoven fabric, and/or textile fabrics of denaturation polyphenylene ether system resin and press forming is performed, physical properties fall. [100 - 30 % of the weight of grinding articles and]
[0035] As a Plastic solid acquired by carrying out press forming by this invention, it can add from the automobile head-lining material containing the foam, the nonwoven fabric, or textile fabrics of denaturation polyphenylene ether system resin, looking at physical properties for 0 - 30 % of the weight of thermoplastics further at 100 - 30 % of the weight of grinding articles, and 0 - 50 % of the weight of ground papers and 0 - 70 % of the weight of ground polyolefine films.
[0036] As thermoplastics to add, a rigid-polyvinyl-chloride system, an elasticity vinyl chloride system, A rubber strengthening styrene system, a polystyrene system, a styrene acrylonitrile-copolymer system (AS), A polyethylene TEREFU tar system (PET system), a polybutylene TEREFU tar system, A polyamide system (PA system), a polycarbonate system (PC system), poly alkyl (meta) acrylate system resin, independent in polyphenyl maleimide system resin, polyphenylene sulfide system resin, polyacetal system resin, poly ape phone system resin, a rubber-like elasticity object, a graft denaturation rubber-like elasticity object, etc. -- or two or more sorts may be united and you may add.
[0037] The shape of the shape of powder and a film and a flake, a pellet type, massive [10mm or less], etc. are mentioned, and the configuration of the thermoplastics to add has the grinding article of an abraum salt-ized vinyl product, the grinding article of a waste agricultural vinyl film, a waste expanded polystyrene paper, and especially desirable waste form polystyrene from a viewpoint of recycle. **** polypropylene foam and waste polyethylene foam can also be added.
[0038] moreover, independent in thermostabilizers, such as antioxidants, such as a phenolic antioxidant and a thioether system antioxidant, and the Lynn system stabilizer, etc., in order to use as a more highly efficient moldings the regeneration form acquired by this invention carrying out press forming -- or addition use of the two or more kinds can also be carried out collectively. independent in additives, such as the inorganic bulking agent and stabilizer which were furthermore usually known well if needed, lubricant, a release agent, a plasticizer, a flame retarder, a fire-resistant assistant, an ultraviolet ray absorbent, light stabilizer, a pigment, a color, an antistatic agent, a conductive grant agent, a dispersant, a compatibilizer, and an antimicrobial agent, -- or two or more kinds can be used collectively.
[0039] Press forming with common press forming for fabricating a regeneration form is used, and it is not limited at all. Although desirable press temperature is based on the amount of resin contained in head-lining material, or the class and loadings of the paper to blend, a polyolefine system film, and thermoplastics, it is desirable to decide observing the resin welding condition at the time of a press. Especially when PP and/or PE are included as a polyolefine system film and thermoplastics, 180-250 degrees C is desirable, and when blending a vinyl chloride system as thermoplastics, it is desirable to carry out press forming at 170-200 degrees C because of burning prevention. A press pressure has desirable 10 - 20 kg/cm2, and it is more more desirable still from the point of the appearance nature of regeneration forms, such as physical properties, such as the productivity of regeneration forms, such as a board, and flexural strength, and a board, to set up so that it may become 13 - 17 kg/cm2.
[0040] Specifically, the press-forming object is usable as interior material of an automobile on a part of a door panel, door trim, front panel, automobile head-lining material, the board of the trunk room of

an automobile, etc.
[0041]
[Example] Although an example is shown below, thereby, this invention does not receive a limit.
40 % of the weight of (A) PPE resinous principles, (Manufacture of head-lining material) The foaming agent (iso/n=85/15) 3 weight section and the talc 0.32 weight section which use iso-butane as a principal component to the denaturation PPE meter resin 100 weight section which is mixed resin which mixed PPE resin and PS resin so that it might become 60 % of the weight of PS resinous principles are kneaded at 290 degrees C with an extruder. It cooled to the resin temperature of 198 degrees C, and extruded with the circular dice, and one 11 times the expansion ratio [the thickness of 2.6mm and] of this and the foaming sheet of superintendent officer 240 g/m2 were obtained. The obtained foaming sheet was rolled round in the shape of a roll.
[0042] It lets out the obtained foaming sheet. 30 % of the weight of PPE resinous principles, 64 % of the weight of PS resinous principles, Do melting and kneading of PPE resin, HIPS resin, and the resin that mixed the shock-proof amelioration agent (tough PUREN #125:styrene-butadiene-styrene block copolymer (Asahi Chemical make)), and it extrudes with the resin temperature of 278 degrees C using a T die so that it may become 6 % of the weight of rubber components. The laminating of the non-foaming layer with a thickness of 120 micrometers was carried out to one side of a foaming sheet, and the obtained laminating sheet was rolled round in the shape of a roll. Next, it let out the laminating sheet which carried out the laminating of the non-foaming layer to one side, and the laminating sheet which changed into the resinous principle of 30 % of the weight of PPE resinous principles and 70 % of the weight of PS resinous principles, carried out the laminating of the non-foaming layer with a thickness of 120micro, and carried out the laminating of the non-fizz to both sides was rolled round in the shape of a roll like other fields.
[0043] Next, it let out the obtained foaming laminating sheet and thermocompression bonding of the film of the hot melt adhesive (HIRODAIN #7586, product made from HIRODAIN) of an acid conversion polyolefine system with a thickness of 30micro was carried out to the front face of the resinous principle of 30 % of the weight of PPE resinous principles of a foaming laminating sheet, and 70 % of the weight of PS resinous principles at 120 degrees C. Next, it carried out [superposition tacking] of the epidermis material which consists of a nonwoven fabric (240g/m2) of polyester on the film of hot melt adhesive. Next, the four way type of the laminating foaming sheet which carried out [tacking] of the epidermis material was clamped, and it put into the heating furnace, and heated to the skin temperature of 145 degrees C, and after the metal mold which carried out temperature control to 60 degrees C performed plug shaping, trimming and punching processing were performed and automobile head-lining material was obtained.
[0044] (B) After carrying out the laminating of the non-foaming layer which becomes one side of the foam of PPE resin and PS resin from PPE resin, HIPS resin, and the resin that mixed the shock-proof amelioration agent (tough PUREN #125:styrene-butadiene-styrene block copolymer (Asahi Chemical make)) like the above (A), the laminating sheet which carried out the laminating of the non-foaming layer to which a butadiene rubber component becomes the opposite side from 12% of the weight of HIPS resin by the same thickness, and carried out the laminating of the non-foaming layer to both sides was rolled round in the shape of a roll.
[0045] Next, after letting out the obtained foaming laminating sheet like (A) and carrying out thermocompression bonding of the hot-melt-adhesive film of the same acid conversion polyolefine system as (A) to a conversion PPE resin side, the epidermis material which consists of a nonwoven fabric of polyester was piled up, and automobile head-lining material was obtained like (A).
[0046] (Grinding process)
**(A) Or the shear type grinder which attached the screen of 10phi ground the edge material of the head-lining material for automobiles of (B).
** The shear type grinder which attached the screen of 10phi ground waste paper of fine quality.
** The shear type grinder which attached the screen of 10phi ground the bag of waste PP.
** The shear type grinder which attached the screen of 10phi ground the bag waste [PE].
[0047] (Manufacture of a board)
(Examples 1-5) As shown in Table 1, it blends and blends, it presses at 230 degrees C for 6 minutes, and a board with a thickness of 3mm is created so that 15kg [per two] ** may be cost 1cm of

Plastic solids, a test piece is cut down, and it is ASTM. D790 It applied correspondingly and bending physical properties and specific gravity were measured.
[0048]
[Table 1]

	実施例1	実施例2	実施例3	実施例4	実施例5	実施例6
廃天井材（A）（%）	80		70	40	40	100
廃天井材（B）（%）		80				
廃上質紙（%）	20	20	30	40	40	
廃ＰＰフィルム（%）				20		
廃ＰＥフィルム（%）					20	
曲げ強度（MPa）	12	14	14	15	13	15
曲げ弾性率(MPa)	890	900	1230	950	850	1190
比重	1.03	1.05	1.05	1.02	1.02	1.02

(Example 1 of a comparison) The shear type grinder which attached the screen of 50phi ground the edge material of the head-lining material for automobiles of the above (A). Moreover, the shear type grinder which attached the screen of 50phi ground the above-mentioned waste paper of fine quality. Like the example 3, after combination / blend, the board which carried out press forming was uneven, and weak.
[0049] (Example 2 of a comparison) The pellet of the grinding article (A) of an example 1 was extruded and carried out at 240 degrees C using 40mm extruder. What mixed on 80 % of the weight of this pellet the 20 % of the weight of the same waste paper of fine quality as an example 1, and carried out press forming to it like the example 1 had flexural strength as weak as 7MPa(s).
[0050]
[Effect of the Invention] It is the industrially excellent recycle approach to add and carry out press forming of the refuse paper and the waste polyolefine film which ground the edge material generated at the time of the scrap wood of the automobile head-lining material containing the foam, the nonwoven fabric, or textile fabrics of denaturation polyphenylene ether system resin and/or fabrication, used as raw materials and were ground depending on the case, and since the reinforcement of the Plastic solid moreover acquired is good, it can be used for various applications, such as an automotive application.

[Translation done.]